Background

NOAA Fisheries' Pacific Islands Fisheries Science Center conducts the long-term Pacific National Coral Reef Monitoring Program (Pacific NCRMP) to track the status and trends of coral reef ecosystems of the U.S. Pacific Islands. This brief provides an overview of the most recent fish survey efforts and preliminary data summaries. These data will undergo one more round of quality control – this brief is just a first look. Earlier data can be downloaded through the Data Visualization Tool (search 'NCRMP data viewer'). For all other data requests, please email Tye Kindinger: tye.kindinger@noaa.gov

Sampling effort

- We visually survey reef fish assemblages using the stationary point count method: search for 'Standard Operating Procedures: Data Collection for Rapid Ecological Assessment Fish Surveys'.
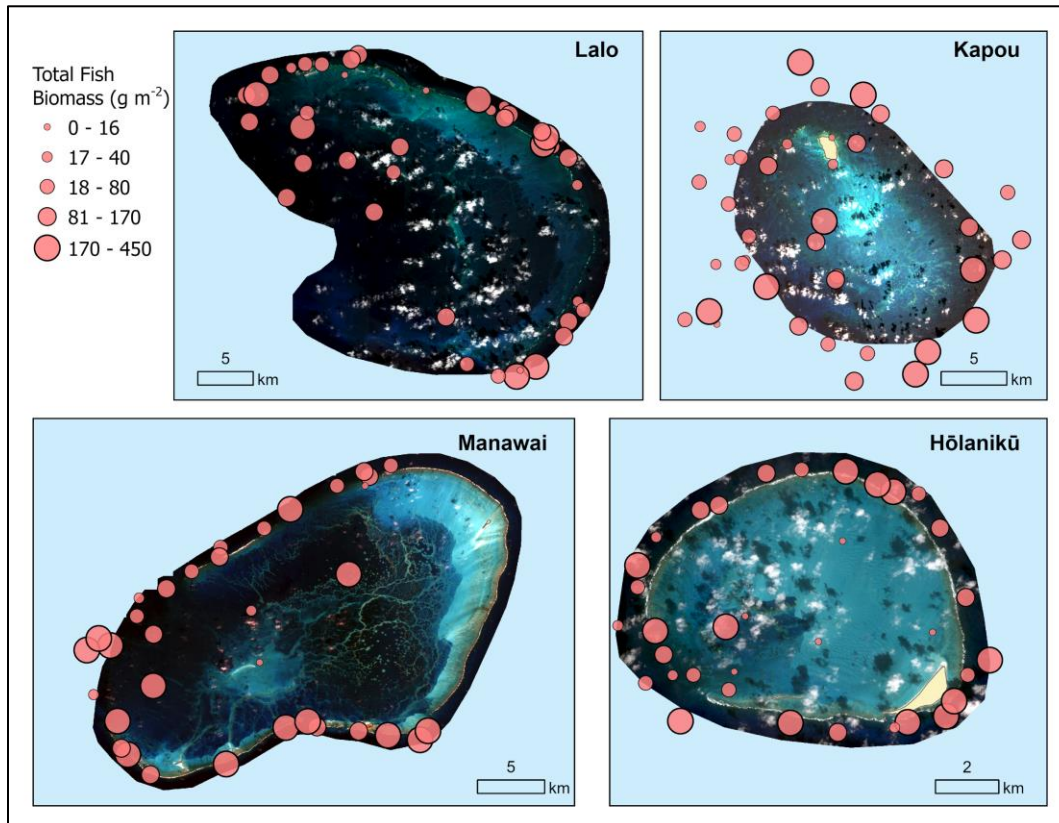- We aim for even site coverage around each island, but weather and logistics dictate the final spread.

Figure 1. Total fish biomass (g m^{-2}) at sites surveyed. We collected data at a total of 160 sites:

Lalo / French Frigate Shoals (n=45),

Hōlanikū / Kure (n=35),

Kapou / Lisianski (n=44),

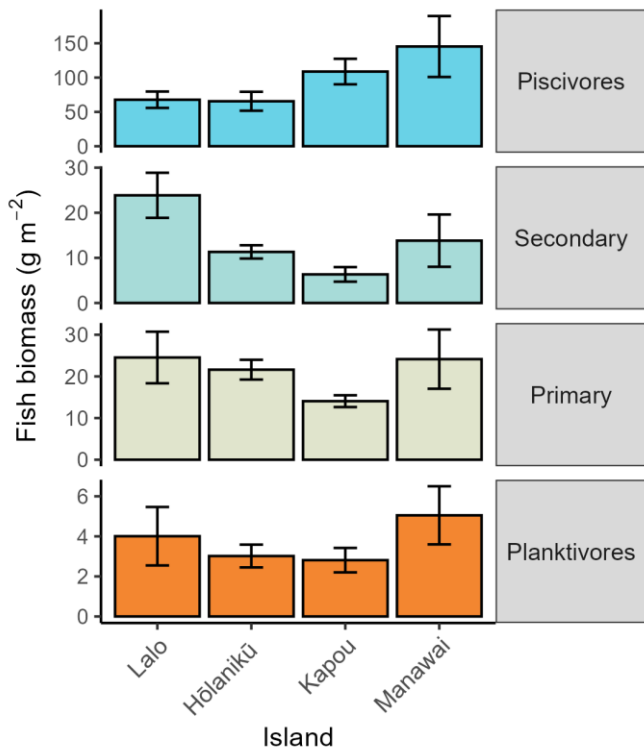Manawai / Pearl and Hermes (n=36).

Figure 2. Mean fish biomass (± standard error) of consumer groups. Secondary consumers are largely omnivores (which eat a variety of fish and invertebrates) and invertivores. Primary consumers include herbivores (which eat plants) and detritivores (which bottom-feed on detritus).
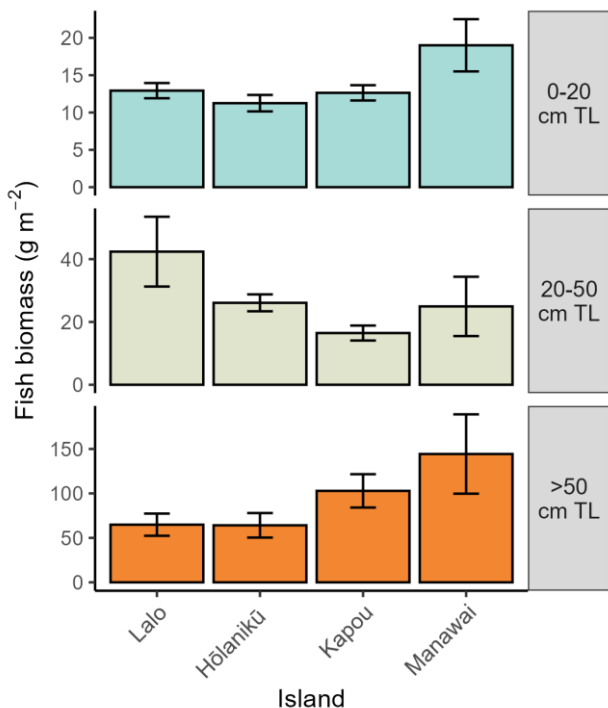

Figure 3. Mean fish biomass (± standard error) of size classes (cm total length [TL]).

Spatial Sample Design

The sampling domain is hard-bottom habitat in water shallower than 30 m. All islands/atolls within regions are stratified by reef zone (backreef, forereef, lagoon, protected slope) and depth zone: shallow (> 0–6 m), mid (> 6–18 m), and deep (> 18–30 m). Survey sites are randomly distributed around an island according to the relative area of strata.

Sampling Methods

A pair of divers surveyed the fish assemblage at each site using a stationary point count method (Fig. 4). Each diver identified, counted, and estimated the total length of fishes within a visually-estimated cylinder. These data were used to calculate fish biomass (g m^{-2}) and pooled to larger spatial scales (i.e. island) according to a weighted average method to account for variance in area across strata.
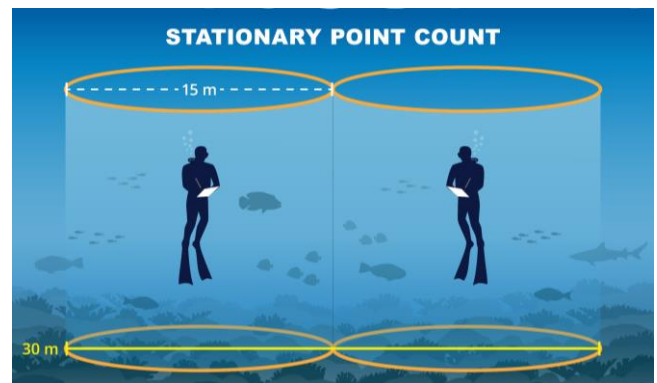

Figure 4. Method used to monitor fish assemblages at each survey site.

For more information

National Coral Reef Monitoring Program: search 'national coral reef monitoring'

NOAA Fisheries' PIFSC: search 'Pacific Islands Fisheries Science'

Coral Reef Monitoring in the Pacific: search 'coral reef monitoring in the Pacific'

Data and Methods Overview: search 'Long-term monitoring of coral reef fish assemblages in the Western central Pacific'